

WHAT IS CLAIMED IS:

1. An isolated nucleic acid molecule comprising:
  - a. a nucleic acid molecule encoding a polypeptide comprising the amino acid sequence shown in FIG. 1 (SEQ. ID NO. 2); or
  - b. a nucleic acid molecule encoding a polypeptide comprising the amino acid sequence encoded by the nucleic acid insert of the clone contained in ATCC accession 98414.
- 10 2. The isolated nucleic acid molecule of Claim 1 wherein the nucleic acid molecule contains the nucleotide sequence shown in FIG. 1 (SEQ. ID NO. 1).
- 15 3. An isolated nucleic acid molecule which hybridizes to the complement of the nucleic acid molecule of Claim 1 and encodes a polypeptide involved in an immune, central nervous system or metabolic disorder.
- 20 4. The isolated nucleic acid molecule of Claim 3 wherein the immune disorder is an inflammatory disorder.
- 25 5. The isolated nucleic acid molecule of Claim 4 wherein the central nervous system disorder is schizophrenia, cognitive disorders, multiple sclerosis or depression.
6. The isolated nucleic acid molecule of Claim 4 wherein the metabolic disorder is a body weight disorder.
- 30 7. An isolated nucleic acid molecule which hybridizes under stringent conditions to the complement of the nucleic acid molecule of Claim 1.
- 35 8. The isolated nucleic acid molecule of Claim 3 or 7 wherein the nucleic acid molecule encodes a naturally occurring polypeptide.

9. A nucleotide vector containing the nucleotide sequence of Claim 1, 3 or 7.

10. An expression vector containing the nucleotide sequence of Claim 1, 3 or 7 in operative association with a nucleotide regulatory sequence that controls expression of the nucleotide sequence in a host cell.

11. The expression vector of Claim 10, wherein 10 said regulatory element is selected from the group consisting of the cytomegalovirus hCMV immediate early gene, the early or late promoters of SV40 adenovirus, the lac system, the trp system, the TAC system, the TRC system, the major operator and promoter regions of phage A, the control regions of fd 15 coat protein, the promoter for 3-phosphoglycerate kinase, the promoters of acid phosphatase, and the promoters of the yeast  $\alpha$ -mating factors.

12. A genetically engineered host cell that 20 contains the nucleotide sequence of Claim 1, 3 or 7.

13. A genetically engineered host cell that contains the nucleotide sequence of Claim 1, 3 or 7 in operative association with a nucleotide regulatory sequence 25 that controls expression of the nucleotide sequence in the host cell.

14. An isolated gene product comprising:

- a. the amino acid sequence shown in FIG. 1 (SEQ. 30 ID NO. 2); or
- b. the amino acid sequence encoded by the nucleic acid insert of the clone contained in ATCC accession No. 98414.

35 15. An isolated gene product encoded by the nucleic acid molecule of Claim 3 or 7.

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16. An antibody that immunospecifically binds the gene product of Claim 14.

17. An antibody that immunospecifically binds the 5 gene product of Claim 15.

18. A method for diagnosing an immune, central nervous system or metabolic disorder in a mammal, comprising: measuring I5E gene expression in a patient sample.

10 19. The method of Claim 18 wherein the immune disorder is an inflammatory disorder.

20 21. The method of Claim 19 wherein the metabolic disorder is a body weight disorder.

20 22. The method of Claim 18 in which expression is measured by detecting I5E mRNA transcripts.

23. The method of Claim 18 in which expression is 25 measured by detecting I5E gene product.

24. A method for diagnosing a I5E disorder in a mammal, comprising: measuring I5E gene expression in a patient sample.

30 25. The method of Claim 24 in which expression is measured by detecting I5E mRNA transcripts.

26. The method of Claim 24 in which expression is 35 measured by detecting I5E gene product.

27. A method for diagnosing an immune, central nervous system or metabolic disorder in a mammal, comprising: detecting a I5E gene mutation contained in the genome of the mammal.

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28. The method of Claim 27 wherein the central nervous system disorder is schizophrenia, cognitive disorders, multiple sclerosis or depression.

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29. The method of Claim 27 wherein the immune disorder is an inflammatory disorder.

30. The method of Claim 28 wherein the metabolic disorder is a body weight disorder.

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31. A method for diagnosing a I5E disorder in a mammal, comprising: detecting a I5E gene mutation contained in the genome of the mammal.

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32. A method for identifying a compound capable of modulating a I5E activity, comprising:

- a. contacting a compound to a cell that expresses a I5E gene;
- b. measuring the level of I5E gene expression in the cell; and
- c. comparing the level obtained in (b) to I5E gene expression level obtained in the absence of the compound;

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such that if the level obtained in (b) differs from that obtained in the absence of the compound, a compound capable of modulating a I5E activity has been identified.

33. The method of Claim 32 wherein the compound increases the level of I5E gene expression.

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34. The method of Claim 32 wherein the compound decreases the level of I5E gene expression.

35. The method of Claim 32 in which expression of the I5E gene is detected by measuring I5E mRNA transcripts.

36. The method of Claim 32 in which expression of 5 the I5E gene is detected by measuring I5E gene product.

37. The method of Claim 32 wherein the compound is a small organic molecule.

10 38. A method for identifying a compound capable of treating an immune, central nervous system or metabolic disorder, comprising:

- a. contacting a compound to a cell that expresses a I5E gene;
- 15 b. measuring the level of I5E gene expression in the cell; and
- c. comparing the level obtained in (b) to I5E gene expression level obtained in the absence of the compound;

20 such that if the level obtained in (b) differs from that obtained in the absence of the compound, a compound capable of treating an immune, central nervous system or metabolic disorder has been identified.

25 39. The method of Claim 38 wherein the central nervous system disorder is schizophrenia, cognitive disorders multiple sclerosis or depression.

40. The method of Claim 38 wherein the immune 30 disorder is an inflammatory disorder.

41. The method of Claim 38 wherein the metabolic disorder is a body weight disorder.

35 42. The method of Claim 38 wherein the compound increases the level of I5E gene expression.

43. The method of Claim 38 wherein the compound decreases the level of I5E gene expression.

44. The method of Claim 38 in which expression of 5 the I5E gene is detected by measuring I5E mRNA transcripts.

45. The method of Claim 38 in which expression of the I5E gene is detected by measuring I5E gene product.

10 46. The method of Claim 38 in which the compound is a small organic molecule.

47. A method for treating an immune, central nervous system or metabolic disorder in a mammal comprising 15 administering to the mammal a compound to the mammal that modulates the synthesis, expression or activity of a mammalian I5E gene or I5E gene product so that symptoms of the disorder are ameliorated.

20 48. The method of Claim 47 wherein the neuropsychiatric disorder is schizophrenia, attention deficit disorder, a schizoaffective disorder, a bipolar affective disorder or a unipolar disorder.

25 49. The method of Claim 47 wherein immune disorder is an inflammatory disorder.

50. The method of Claim 47 wherein the metabolic disorder is a body weight disorder.

30 51. The method of Claim 47 wherein the compound increases the synthesis, expression or activity of a mammalian I5E gene or I5E gene product.

52. The method of Claim 51 wherein the compound comprises the nucleic acid molecule of Claim 1, 3 or 7.

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53. The method of Claim 51 wherein the compound is a small organic molecule.

54. The method of Claim 47 wherein the compound 5 decreases the synthesis, expression or activity of a mammalian I5E gene or I5E gene product.

55. The method of Claim 54 wherein the compound provides an antisense or ribozyme molecule that blocks 10 translation of I5E mRNAs.

56. The method of Claim 54 wherein the compound provides a nucleic acid molecule that is complementary to a I5E gene and blocks I5E transcription via triple helix 15 formation.

57. The method of Claim 54 wherein the compound is a small organic molecule.

20 58. A method for treating a I5E disorder in a mammal comprising administering to the mammal a compound to the mammal that modulates the synthesis, expression or activity of a mammalian I5E gene or I5E gene product so that symptoms of the disorder are ameliorated.

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59. The method of Claim 58 wherein the compound increases the synthesis, expression or activity of a mammalian I5E gene or I5E gene product.

Sub A<sup>3</sup> 7 60. The method of Claim 59 wherein the compound comprises the nucleic acid molecule of Claim 1, 3 or 7.

61. The method of Claim 59 wherein the compound is a small organic molecule.

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62. The method of Claim 58 wherein the compound decreases the synthesis, expression or activity of a mammalian I5E gene or I5E gene product.

5 63. The method of Claim 62 wherein the compound provides an antisense or ribozyme molecule that blocks translation of I5E mRNAs.

10 64. The method of Claim 62 wherein the compound provides a nucleic acid molecule that is complementary to a I5E gene and blocks I5E transcription via triple helix formation.

15 65. The method of Claim 62 wherein the compound is a small organic molecule.

20 66. A method of treating an immune, central nervous system or metabolic disorder resulting from a mutation in a I5E gene, in a mammal, comprising supplying the mammal with a nucleic acid molecule that encodes an unimpaired I5E gene product such that an unimpaired I5E gene product is expressed and symptoms of the disorder are ameliorated.

25 67. The method of Claim 66 wherein the neuropsychiatric disorder is schizophrenia, attention deficit disorder, a schizoaffective disorder, a bipolar affective disorder or a unipolar disorder.

30 68. The method of Claim 66 wherein the immune disorder is an inflammatory disorder.

69. The method of Claim 67 wherein the metabolic disorder is a body weight disorder.

35 70. The method of Claim 66 in which a nucleic acid molecule encoding the unimpaired I5E protein, contained in a

pharmaceutically acceptable carrier, is administered to the mammal.

71. The method of Claim 70 in which the carrier is  
5 a DNA vector, a viral vector, a liposome or lipofectin.

72. The method of Claim 66 in which the nucleic acid encoding an unimpaired I5E protein is introduced into the brain of the mammal.

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73. A method of treating a I5E disorder resulting from a mutation in a I5E gene in a mammal, comprising supplying the mammal with a nucleic acid molecule that encodes an unimpaired I5E gene product such that an 15 unimpaired I5E gene product is expressed and symptoms of the disorder are ameliorated.

74. The method of Claim 73 in which a nucleic acid molecule encoding an unimpaired I5E protein, contained in a 20 pharmaceutically acceptable carrier, is administered to the mammal.

75. The method of Claim 74 in which the carrier is a DNA vector, a viral vector, a liposome or lipofectin.

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76. A method of treating an immune, central nervous system or metabolic disorder resulting from a mutation in a I5E gene in a mammal, comprising supplying the mammal with a cell comprising a nucleic acid molecule that 30 encodes an unimpaired I5E gene product such that the cell expresses unimpaired I5E gene product and symptoms of the disorder are ameliorated.

77. The method of Claim 76 wherein the 35 neuropsychiatric disorder is schizophrenia, attention deficit disorder, a schizoaffective disorder, a bipolar affective disorder or a unipolar disorder.

78. The method of Claim 76 wherein the immune disorder is inflammation.

5 79. The method of Claim 76 wherein the metabolic disorder is a body weight disorder.

80. The method of Claim 76 in which the cell is engineered *ex vivo* to express an unimpaired I5E protein.

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81. The method of Claim 76 in which the cell is contained in a carrier.

82. The method of Claim 76 in which a nucleic acid 15 molecule encoding an unimpaired I5E protein, contained in a pharmaceutically acceptable carrier, is administered to the mammal.

83. The method of Claim 82 in which the carrier is 20 a DNA vector, a viral vector, a liposome or lipofectin.

84. A method of treating a I5E disorder resulting from a mutation in a I5E gene in a mammal, comprising supplying the mammal with a cell comprising a nucleic acid 25 molecule that encodes an unimpaired I5E gene product such that the cell expresses unimpaired I5E gene product and symptoms of the disorder are ameliorated.

85. The method of Claim 84 in which the cell is 30 engineered *ex vivo* to express an unimpaired I5E protein.

86. The method of Claim 84 in which the cell is contained in a carrier.

35 87. The method of Claim 84 in which a nucleic acid molecule encoding an unimpaired I5E protein, contained in a

pharmaceutically acceptable carrier, is administered to the mammal.

88. The method of Claim 84 in which the carrier is  
5 a DNA vector, a viral vector, a liposome or lipofectin.

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